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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,418	07/03/2003	Sabina J. Houle	42P9485D	5131

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EXAMINER

THOMPSON, GREGORY D

ART UNIT	PAPER NUMBER
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2835

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/613,418	<b>Applicant(s)</b> HOULE, SABINA J.	
	<b>Examiner</b> Gregory D. Thompson	<b>Art Unit</b> 2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 2/21/06.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 8-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-11, 18, 19 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/21/06</u> . | 6) <input type="checkbox"/> Other: _____  |

1. Election of Fig. 4A with claims 8-11,18-19 and 21-22 readable thereon still applies.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 8 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Patel (5,587,882).

Patel teaches in Fig. 5 a heat conductive heat spreader (broad term) 40 with a contiguous wall or ring structure 51, package substrate 44, flexible sealant material 41 in contact with the surface of the spreader where wall 51 extends and a substrate 44. Material 41 would define a perimeter of a cavity in Fig.5 since material 43 would be in a ring shape and helps define the cavity formed between sink 40 and substrate 44. The circuit substrate (broad term) would be any one of elements 49 or 55.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel as applied to claim 8 above, and further in view of Toy (5,931,222).

Patel does not teach the flexible sealant 41 as polymeric material. Toy teaches silicone polymeric adhesive 21 used to seal element 22 to cover or spreader 18.

Therefore, it is considered obvious to one of ordinary skill in the art at the time of the invention was made compose sealant 41 not of polymeric as taught by Toy to provide excellent sealant and mechanical shock properties to prolong device life.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel as applied to claim 8 above, and further in view of Toy.

Patel does not teach that 40 is plated with nickel. Toy teaches nickel plating to fight off corrosion. Therefore, it is considered obvious to one of ordinary skill in the art at the time of the invention was made to nickel plate 40 as taught by Toy to fight off corrosion to prolong device life.

8. Claim 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Patel as applied to claim 8 above, and further in view of Daves et al (6,091,603).

Patel does not teach that 40 is a heat conductive organic material (epoxy resin from page 9, line 3 of disclosure) to provide heat enhancement. Daves teaches thermally epoxy resin directly bonded (broad to read on coating) to a lid or heat spreader (broad term). Therefore, it is considered obvious to one of ordinary skill in the art at the time of the invention was made to coat 40 as taught by Daves to provide excellent heat enhancement to prolong device life.

9. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel as applied to claim 8 above, and further in view of Toy.

Patel does not teach that material 48 is composed of thermal material with metal particles therein. Toy teaches thermal material 16 with metal particles therein for heat enhancement. Therefore, it is considered obvious to one of ordinary skill in the art at time the invention was made to compose material 48 out of material 16 as taught by Toy to provide excellent heat enhancement to prolong device life.

10. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Toy et al.

Patel teaches a semiconductor package, comprising: a substrate 44 having a surface; at least one semiconductor device 49 or 55 coupled to the surface of the substrate; a heat conductive cover or heat spreader (broad term) 40 made of heat conductive material coupled to the surface of the substrate through a flexible sealant material 41, the flexible material contacting a surface of the cover (where contiguous ring or wall 51 extends just above the number 43) in Fig.5 and the surface of the substrate and creating a space between the substrate and the cover, the semiconductor

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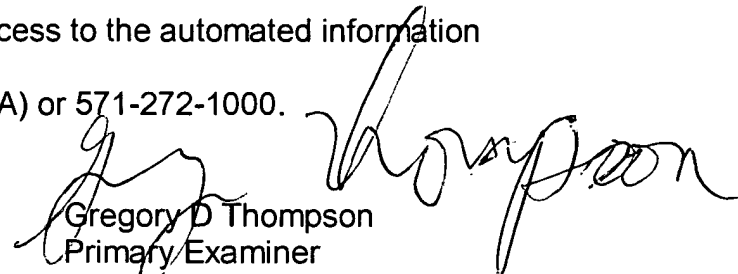
device 49 or 55 residing within the space and a thermal interface material 48 a surface of the semiconductor device 49 or 55 and the cover. Ring or wall 51 does extend into the material 41. Patel does not teach nor suggest that material 48 has thermal metal particles therein. Toy teaches a thermal interface material 16 with thermal metal particles therein for heat enhancement. Therefore, it is considered obvious to one of ordinary skill in the art at the time of the invention was made to compose the material 48 in Patel out of the material 16 with metal particles therein as taught by Toy to provide an excellent thermal interface heat enhancement material to prolong device 49 or 55 life.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory D. Thompson whose telephone number is (571) 272-2045. The examiner can normally be reached on M-Thr..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2800, ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Gregory D Thompson  
Primary Examiner  
Art Unit 2835

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